How do you get involved?

Alternatively, printed copies can be requested from Defra using the contact details provided below.

The consultation document also contains:

- a discussion of the recent reviews of both the extent of current NVZs and the effectiveness of the current Action Programme,
- a summary of the scientific rationale underpinning the proposals and their predicted environmental and economic impacts,
- the anticipated arrangements for enforcement and timetable for implementation, and
- plans for advice and support.

If you would like to respond to the consultation, please submit your views in writing to either the postal or email address provided below by 13 November 2007.

Contact details

Defra, Nitrates Team
Zone A, 2nd Floor,
Ergon House,
Horseferry Road,
London,
SW1P 2AL

Email: nitratesconsultation@defra.gsi.gov.uk

Tel: 0207 238 5494
Nitrate Vulnerable Zones

The recent review of the existing Nitrate Vulnerable Zones (NVZs) identified a number of additional waters as affected by nitrate pollution and therefore we need to increase coverage from 55% to about 70% of England.

We are seeking views through the consultation on whether to continue with applying the Action Programme within the discrete NVZs (as revised) or across the whole of England.

The NVZ Action Programme

The Nitrates Directive requires the effectiveness of the Action Programme be reviewed at least every four years, and that tightened and/or additional measures are introduced if necessary.

We recently completed a review of the current Action Programme and found that the current measures are not achieving an overall consistent downward trend in nitrate losses and therefore further action is required. The proposed Action Programme measures are outlined below – measures that remain unchanged since the last Action Programme are highlighted in bold.

(i) Controlling when nitrogen is applied

Closed periods for organic manure

Organic manures with high available N (>30% of total N), such as slurry and poultry manure, must not be applied to land between the following dates:

<table>
<thead>
<tr>
<th>Average Annual Rainfall (mm)</th>
<th>Grassland</th>
<th>Arable land</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sandy and Shallow soils</td>
<td>All other soils</td>
</tr>
<tr>
<td>Over 1050</td>
<td>1 Sep – 31 Dec</td>
<td>1 Oct – 31 Jan</td>
</tr>
</tbody>
</table>

*On arable land with sandy and shallow soils, applications will be permitted up to 15 September, provided that after application a crop is drilled by this date.

(vi) Cover crops

Cover crops are required where ground would otherwise be left bare over winter, except in the case of crops harvested after 1 September (e.g. sugar beet).

(vii) Record keeping

All records must be kept for 5 years and include the following:

- Copies of the completed calculation procedures and risk assessment
- Annual field records of the balance between crop requirement and supply of nitrogen from all sources
- Imports and exports of livestock manures

Questions

1. Should the Action Programme be applied across the whole of England?
2. Under what circumstances should de-designation of NVZs occur in the future?
3. Are there any other crops with an agronomic N requirement during the closed periods?
4. Do you feel there is a convincing justification for a derogation? If so, why?
5. Are the standard N production values needed for any other livestock types?
6. What are your views on the inclusion of cover crops within the Action Programme?
7. Do you have any suggestions for the advice and support from Defra needed to help implement the Action Programme?
Crop availability (% total N applied) in year of application

<table>
<thead>
<tr>
<th>N fertiliser</th>
<th>From 1 January 2009</th>
<th>From 1 January 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufactured</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Cattle slurry</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Pig slurry</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>Poultry manure/litter</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>FYM</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

*N efficiency values do not increase over time as there are no closed periods for FYM (a low available N manure).

(iv) Controlling where nitrogen is applied
Farmers must not spread in locations which will cause nitrogen to enter surface waters either by surface run-off or directly.

To this end:
- Must undertake a written risk assessment procedure to identify suitable locations for spreading organic manures
- Applications of nitrogen fertiliser to land with a steep slope (12 degrees or more) will be prohibited in conditions where there is a high risk of runoff
- Applications of organic manure within 50m of a spring, well or borehole shall be prohibited
- Applications of organic manure within 10m of a surface water shall be prohibited
- Applications of organic manure within 10m of a surface water shall be prohibited
- Applications of manufactured fertiliser within 2m of a surface water shall be prohibited
- Must undertake a field inspection to consider the risk of runoff prior to spreading

(v) Controlling how nitrogen is applied
Farmers must not spread in a manner which will cause nitrogen to enter surface waters either by surface run-off or directly.

To this end:
- The use of high trajectory, high pressure techniques for making applications of organic manures will be prohibited.
- Nitrogen fertiliser must be applied in a uniform and accurate manner
- Organic manures with low available N must be incorporated within 24 hours on all steeply sloping land that is located within 50m of a surface water
- Organic manures with high available N must be incorporated within 24 hours

Closed periods for manufactured fertiliser

Manufactured nitrogen fertilisers must not be applied to land during the following periods:
- Grassland = 15 September to 31 January
- Arable land = 1 September to 31 January

Applications during the closed period will be permitted:
- to specified crops up to a maximum application rate (see table below).
- on a case-by-case basis and if written advice is obtained from a FACTS qualified adviser.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Maximum nitrogen rate (kg/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oilseed rape, winter</td>
<td>30</td>
</tr>
<tr>
<td>Asparagus</td>
<td>50</td>
</tr>
<tr>
<td>Broccoli, purple sprouting</td>
<td>100</td>
</tr>
<tr>
<td>Cabbage, over-wintered spring</td>
<td>100</td>
</tr>
<tr>
<td>Cauliflowers, winter hardy/Roscoff</td>
<td>100</td>
</tr>
<tr>
<td>Leeks</td>
<td>40</td>
</tr>
<tr>
<td>Onions, bulb</td>
<td>40</td>
</tr>
<tr>
<td>Onions, over-wintered salad</td>
<td>40</td>
</tr>
<tr>
<td>Parsley</td>
<td>40</td>
</tr>
<tr>
<td>Grazed grass</td>
<td>80</td>
</tr>
</tbody>
</table>

Periods when the risk of runoff is high
Do not apply nitrogen fertiliser when:
- the soil is either waterlogged, flooded, frozen hard or snow covered
- heavy rain is forecast within 48 hours

(ii) Storage requirements for livestock manure

Capacity
Farms that produce livestock manures with high available N (>30%) must provide the following storage capacity requirements:
- 26 weeks storage capacity for pig slurry and poultry manure
- 22 weeks storage capacity for all other slurry

Farmers will be required to use a standard procedure and standard excreta volumes to calculate the volume to which this 22/26 weeks equates.

The following deductions from this potential capacity will be permitted:
- Volume of manure exported off the farm
- Volume of solids separated from the slurry
- Amount of poultry litter (i.e. a mixture of poultry excreta plus bedding) which is stored in an appropriately located, temporary field heap
**Storage of solid manure**

Poultry litter and solid manures with low available nitrogen content (<30%) must be stored:

- In the livestock house
- At a suitable, temporary field site, or
- On concrete constructed to the appropriate standard

The requirements for a suitable field site, include the following:

- Temporary field heaps must not be located within 50m of a spring, well or borehole or within 10m of a surface water or land drain.
- Temporary field heaps must not be located in any single position for more than 12 successive months.
- There must be a 2 year gap before returning to the same field site.

**Construction standards**

Stores need to meet the construction standards set down in The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 (amended 1997).

(iii) **Controlling how much nitrogen can be applied**

**The whole farm limit for livestock manures**

Livestock manure loadings shall not exceed 170 kg/ha of total nitrogen each calendar year averaged over the farm. Currently compiling evidence to seek approval from the European Commission for a higher limit in England (e.g. 250kgN/yr for grassland)

Compliance with the 170 kgN/ha limit must be calculated using a standard procedure. Standard manure N production figures must also be used except where alternative figures are derived via:

- A Decision Support Tool
- Manure analysis using a method approved by the EA.

**The field limit for organic manures**

Organic manure must not be applied to any field where the application would result in the total nitrogen contained in the organic manure applied in any calendar year exceeding a rate of 250 kg per hectare.

**Crop requirement limitation**

Farmers must balance, at the field level, the nitrogen requirement of the crop with the nitrogen supply to the crop from all sources.

To this end, farmers must be able to demonstrate that they have undertaken the following mandatory steps when planning their nitrogen fertiliser applications:

- Assessed the soil nitrogen supply
- Assessed the nitrogen requirement of the crop (taking into account Soil Nitrogen Supply)
- Assessed the crop available nitrogen supplied to the crop from applications of organic manures
- Calculated the need for manufactured fertiliser nitrogen by deducting the contribution from organic manures from the nitrogen requirement of the crop

Maximum nitrogen application rates (N max) will be set for the main crops (see table below). The supply of nitrogen from applications of organic manure and manufactured fertiliser must be below this upper limit.

<table>
<thead>
<tr>
<th>Crop</th>
<th>N max (kg/ha N)</th>
<th>Standard yield (t/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat, autumn or early sown</td>
<td>220**</td>
<td>8.0</td>
</tr>
<tr>
<td>Wheat, spring-sown</td>
<td>180**</td>
<td>7.0</td>
</tr>
<tr>
<td>Barley, winter</td>
<td>180**</td>
<td>6.5</td>
</tr>
<tr>
<td>Barley, spring</td>
<td>150**</td>
<td>5.5</td>
</tr>
<tr>
<td>Oilseed rape, winter</td>
<td>250**</td>
<td>3.5</td>
</tr>
<tr>
<td>Sugar beet</td>
<td>120</td>
<td>n/a</td>
</tr>
<tr>
<td>Potatoes</td>
<td>270</td>
<td>n/a</td>
</tr>
<tr>
<td>Forage maize</td>
<td>150</td>
<td>n/a</td>
</tr>
<tr>
<td>Field beans</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Peas</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td>Grass</td>
<td>360**</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Exemptions

a. An additional 20kgN/ha is permitted on fields with a shallow soil type.
b. An additional 20kgN/ha is permitted for every tonne that expected yield exceeds ‘standard yield’.
c. An additional 40kgN/ha is permitted to milling wheat varieties.
d. This consists of a maximum autumn application of 30kgN/ha (allowed as exemption to the closed period for manufactured nitrogen fertiliser –see Annex A1) and a maximum spring application of 220kgN/ha.
e. The spring application can be increased by up to 30kgN/ha if expected yield is over 4.0t/ha.
f. An additional 40kgN/ha is permitted to grass to grass that is cut only.
g. An additional 40kgN/ha is permitted to grass in areas of a very good grass growth class.
h. Nmax for grass will be 330kgN/ha after 1 January 2012.

Compliance with N max must be calculated using a standard calculation procedure:

- undertaken at the farm level
- using a minimum level of manure N efficiency when calculating the crop available nitrogen supply from livestock manure applications (see table overleaf)